

## CLAIMS

What is claimed is:

1. A peptide which comprises a subsequence: SRFEVW (SEQ ID NO: 22).
2. A peptide in accordance with claim 1, comprising the formula: X<sub>4</sub>-X<sub>3</sub>-X<sub>2</sub>-X<sub>1</sub>-X<sub>5</sub>-X<sub>6</sub>, where

X<sub>1</sub> is SRFEVW,

X<sub>2</sub> is WI,

X<sub>3</sub> is GIVRK,

X<sub>4</sub> is EN,

X<sub>5</sub> is PYL, and

X<sub>6</sub> is KK,

wherein the peptide comprises X<sub>1</sub> and optionally at least one of X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub> and X<sub>6</sub>, and if any of X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub>, X<sub>5</sub> and X<sub>6</sub> are present, the amino acids are identical in their respective positions to those in ENGIVRKWISRFEVWPYLLKK (SEQ ID NO: 24) as set forth in Figure 1B.

3. A peptide of claim 1 which is up to 100 amino acids in length.
4. A peptide of claim 1, wherein the peptide is at least 80% homologous with a portion of native *Zea mays* protein sequence as set forth in GenBank Accession Number 1498382, and said homology is over the entire length of the peptide; or,  
wherein said peptide causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin at a molar ratio of 100 to 1; or,  
wherein the peptide is at least 80% homologous with a portion of native *Zea mays* protein sequence as set forth in GenBank Accession Number 1498382, and said homology is over the entire length of the peptide, and wherein said peptide causes actin bundling and inhibits actin depolymerization when polymerized in vitro with actin.

5. A peptide having the sequence E-GI\*---W-----W, where, I\* means I or V, - means any amino acid, wherein said peptide causes actin bundling and inhibits actin depolymerization.
6. A peptide in accordance with claim 5, comprising a sequence: EH\*GIV\*R\*-W-----V\* W, where H\* means H or a conservative substitution therefore, V\* means V or a conservative substitution therefore, and R\* means R or a conservative substitution therefore, and - means any amino acid, wherein said peptide causes actin bundling and inhibits actin depolymerization.
7. A peptide in accordance with claim 6, wherein the peptide causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin.
8. A peptide in accordance with claim 7, wherein the peptide is polymerized with actin at a molar ratio of peptide to actin of at least 100:1.
9. A peptide of claim 5, wherein the sequence comprises SEQ ID NO: 12.

10. A peptide comprising at least 16 contiguous amino acids in accordance with the formula:

Gly-Ile-X<sub>1</sub>-X<sub>2</sub>-X<sub>3</sub>-Trp-X<sub>4</sub>-X<sub>5</sub>-X<sub>6</sub>-X<sub>7</sub>-X<sub>8</sub>-X<sub>9</sub>-Trp-X<sub>10</sub>-X<sub>11</sub>-X<sub>12</sub>

or a pharmaceutically acceptable salt thereof, wherein

X<sub>1</sub> is Ile, Val, or Leu;

X<sub>2</sub> is Arg, Lys, Asn, or Thr;

X<sub>3</sub> is Arg, Lys, Asn, or Asp;

X<sub>4</sub> is Ile, Asp, Asn, or Glu;

X<sub>5</sub> is Ser or Asp;

X<sub>6</sub> is Arg, Met, or Ala;

X<sub>7</sub> is Phe or Glu;

X<sub>8</sub> is Asp, Glu, Lys, Arg, or His;

X<sub>9</sub> is Val or Ile;

X<sub>10</sub> is Pro or His;

X<sub>11</sub> is Tyr or His; and

X<sub>12</sub> is Leu or Thr;

wherein the addition of said compound results in about 50% of bundled actin in a molar fraction of peptide to actin of at least 100 to 1.